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02/08/00 Jc759 U.S. PTO

PROVISIONAL APPLICATION COVER SHEET

Mailed as of Feb. 8, 2000

This is a request for filing a PROVISIONAL APPLICATION under 37 CFR 1.53 (b)(2).

Docket Number	PKAY-P1A	Type a plus sign (+) inside this box ->	+

02/08/00 60/180937 Jc563 U.S. PTO

INVENTOR(s)/APPLICANT(s)

LAST NAME	FIRST NAME	MIDDLE INITIAL	RESIDENCE (CITY AND EITHER STATE OR FOREIGN COUNTRY)
Katsikas	Peter	L.	Honolulu, HI

TITLE OF THE INVENTION (280 characters max)

UNWANTED EMAIL FILTERING SYSTEM

CORRESPONDENCE ADDRESS

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STATE	HI	ZIP CODE	96813-3908	COUNTRY	US

ENCLOSED APPLICATION PARTS *(check all that apply)*

[X]	Specification	*Number of Pages*	9	[X]	Small Entity Statement
[X]	Drawing(s)	*Number of Sheets*	8	[ ]	Other (specify)

METHOD OF PAYMENT *(check one)*

[X]	A check or money order is enclosed to cover the Provisional filing fees	PROVISIONAL FILING FEE AMOUNT ($)	$ 75.0
[ ]	The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number:		

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

[X] No.

[ ] Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE Leighton K. Chong Date 02/08/00

TYPED or PRINTED NAME Leighton K. Chong REGISTRATION NO. *(if appropriate)* 27,621

[ ] Additional inventors are being named on separately numbered sheets attached hereto

PROVISIONAL APPLICATION FILING ONLY

Burden Hour Statement: This form is estimated to take .2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Office of Assistance Quality and Enhancement Division, Patent and Trademark Office, Washington, DC 20231, and to the Office of Information and Regulatory Affairs, Office of Management and Budget (Project 0651-0037), Washington, DC 20503. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR	Docket Number (Optional) PKAY-P1A

Applicant, Patentee, or Identifier: Peter L. Katsikas

Application or Patent No.: _____

Filed or Issued: _____

Title: UNWANTED EMAIL FILTERING SYSTEM

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- [X] the specification filed herewith with title as listed above.
- [ ] the application identified above.
- [ ] the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- [X] No such person, concern, or organization exists.
- [ ] Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Peter L. Katsikas		
Signature of inventor	Signature of inventor	Signature of inventor
8/30/1999		
Date	Date	Date

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Specification for SpamKapu

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(a) Application transmittal form.

(b) Fee transmittal form.

(c) Title of the Invention.

"SpamKapu" Software to eliminate unauthorized receipt of electronic mail (spam)

(d) Cross Reference to related applications (if any).

Internet SMTP, POP3, and related standards

(e) Statement of federally sponsored research/development (if any).

none

(f) Reference to a microfiche appendix (if any).

none

(g) Background of the Invention.

Not sure here.

(h) Brief Summary of the Invention.

Most, if not all, of the current software to control spam is based on identifying lists of spam sources or senders and filtering email based on those lists. This technology is only as good as the identifying list and cannot guarantee that the user will not receive spam. Today's spam control software assumes all email is authorized an attempts to filter out unauthorized email.

Because today's spam filtering technologies are based on lists of known spam sources, it is impossible for them to filter email that comes from non-SPAMMERs that is still undesired by the user. For instance, one may have disclosed their email address at a Web site which now used by individuals that are sending email to the user. These individuals will never appear of spam lists because technically they are not spamming.

SpamKapu based on the idea that all email is unauthorized and must be compared against an "authorized senders" list in order to be acceptable to the user. This filters not only spamming sources, but <u>any</u> sender which the user deems as unauthorized. This creates an inherently powerful and 100% private email solution.

SpamKapu intelligently formulates the "authorized senders" list based on analysis of the user's email usage (such as sent email) and a gathering of key data such as their known contacts and associates. The authorized senders list may also be easily

manipulated by the user at any time to add or remove authorized senders.

To summarize: SpamKapu effectively blocks 100% of unauthorized email to the user. It is based on the idea that if you did not send someone an email, they are not authorized to send you email.

(i) Brief description of the several views of the drawing (if any).

(j) Detailed Description of the Invention.

SpamKapu is formed of several key modules and definitions:

SUBSCRIBER: the person that using SpamKapu.

FRIEND: an email-sending source that is authorized to send email to the SUBSCRIBER.

SPAMMER: an email-sending source using manual or highly mechanized means to send one or more emails through the Internet that is not authorized to send email to the SUBSCRIBER.

CONTACT: an email-sending source that is a human being attempting to reach the SUBSCRIBER for a legitimate cause.

SUSPECT: an email sending source that has not yet been identified as either a SPAMMER or CONTACT.

ASL Manager

Software designed to populate the ASL from a variety of methods:

Contact lists of the user indicating Friends.

Continual analysis of sent mail logs which may expose additional Friends.

Standard file formats (i.e. comma-delimited) which would allow subscribers to easily update their ASLs.

Spam Processor (SP)

Decides whether an email address is FRIEND, or SPAMMER by executing rules on the SPDB in conjunction with the ASL.

Returns this result along with any message to include in the error response to the REDIRECTOR.

Uses industry standard PERL programming syntax and incorporates as PERL interpreter to execute rules.

Spam Processing database (SPDB) of which a unique copy exists for each SUBSCRIBER, composed of several tables:

Authorized sender list (ASL), containing

An email address or matching pattern for an email address

Default: exact match

A specific email address

john@company.com

UNIX Standard wildcard matching

*.microsoft.com i.e. anything from "Microsoft.com"
microsoft: anything with microsoft in it
*.mil: any email from the military

Matching any known "blackhole list" by using a %BLACKHOLE% symbol.

A conditional and parameters to execute if the match is true
An action and parameters to perform if the conditional is true.
A parameter used by the secondary action
The last date the SUBSCRIBER sent email to this address
The last date this address sent email to the SUBSCRIBER
Date the record was created

Example list of conditionals to be used by the SPAM PROCESSOR, e.g:

expiration dates.

A given address until 2/12/2004

Date ranges

A given address from 4/1/2004 to 5/2/2004

Specific recurring times

first week of every month but no other time.

e.g newsletter@magazine.com
acceptable during 1st week of each month.

A link to external software designed to allow for additional user-defined criteria

This allows for 3rd party applications.

Example list of different secondary actions to take

Send a given message in the error response.
Send a given message as an email.
Open a file and email its contents
Open a file and send its contents as an error reponse.
Set the sender's status to SPAMMER or FRIEND
Give SMTP default error message
Link and execute external software designed to allow for additional user-defined actions

This allows for 3rd party applications.

List of messages that may be invoked by a given secondary action

Standard "error"
Custom with variable substitution in the message body, e.g:

%username% is substituted with the sender's email address
%subid% is the ID code of the subscriber
%date% is today's date

"hello %username% you have been identified as spam, go to http://www.spamkapu.com/subscriber=%subid% and if you're really human we'll let you in.

Custom text: "All email addresses from America Online are unconditionally rejected"

Authorized Sender mailbox (ASM)

An electronic mailbox confirming to popular Internet standards (as of this writing, POP3 & IMAP4) that contains email sent from FRIENDS.

SpamKapu email address (SKE)

An Internet SMTP-complied email address provided by spamkapu that is unique to the SUBSCRIBER.

Redirector

Software that intercepts incoming email sent to the SKE, routes it's sender's email address to the SP for validation (FRIEND, or SPAMMER)
If FRIEND, the email is directed to the ASM.
If SPAMMER, the SPAMMER is given an error message similar to one if the user didn't exist along with information on how to access the SUBSCRIBER's WBM should further communication be desired.

Web-based messenger (WBM)

A Web site that designed to determine if a SUSPECT is either a SPAMMER or a CONTACT.
An online form would be presented to the SUSPECT to allow entry of the intended message to the SUBSCRIBER.
This form would operate in such a way that only a human SUSPECT would be able to properly execute the form.

A unique web page with a random word would be generated
The SUSPECT would be prompted to enter the word.
If the word matched, the form would be considered "operated by a human" and the SUSPECT is now deemed as a CONTACT

If validated as a CONTACT, the message in the form along with the CONTACT's email address would be sent as a special email to the SUBSCRIBER's ASM.
The subject line of the email would contain the word "contact:" so it could easily be filtered or be subject to special processing by an industry standard email client.
The SUBSCRIBER would have the opportunity to read the email, knowing that at least it was sent by a CONTACT.

ASL manager

Software that intercepts all sent email from the SUBSCRIBER and copies the recipients along with other information into the ASL

The ASL manager may work on either a dynamic (as emails are sent) or batch (analyze logs or other data sources).
The ASL works in conjunction with the UMM

SMTP manager

Software that provides a SUBSCRIBER with an SKE and interfaces with other Internet SMTP standard functions such as:

Sending email FROM or TO the subscriber through the ASL manager.

For example, the SMTP manager may interface with the subscribers "official" or known corporate address to eliminate spam sent to the corporate email system.

User maintenance modules (UMM)

A set of software utilities that allow the SUBSCRIBER to maintain personal settings and the ASL. Examples include:
Default expiration settings.
Bulk-loading of friends into the ASL
Search/add/edit/delete ASL entries
Handling of mail once sent to PSM (i.e. create a predefined response to the spammer)
Outright rejection of email, disallowing it to even get to the PSM.
Preview/Delete items from the PSM
Other features of benefit to subscribers

SpamKapu may be packaged in a variety of ways

As an online service (i.e. Web site) that allows users to subscribe and realize the benefits of spam-free email services.

As a server-side software package. By installing SpamKapu at the server level, any/all users with a valid account on the server can receive the benefits of spam-free email. This is an idea solution for ISPs and/or larger organizations with their own server resources.

As a client-side software package. SpamKapu can install on popular email clients such as Outlook and provide near-identical functionality. This is an idea situation where the user's server does not have SpamKapu installed

Operation of the invention

As a server-side software package or online service

SUBSCRIBERs are added to SpamKapu system.
Each SUBSCRIBER is provided with a PSM, ASM, and UMM and an SKE.
The SUBSCRIBER changes appropriate setting on their email software to accomplish the following:

Use current Internet standards (currently POP3 or IMAP4) to retrieve mail from both the PSM and ASM

Redirect email sent to their current email address to their SKE instead OR set the email reply-to address to their SKE. Use the SMTP manager to handle the sending of all email.

Any email sent to the SKE is processed by the redirector as described above.
Any email sent by the SUBSCRIBER through the ASL manager (via the SMTP manager) and processed as described above.
The user can retrieve email from the ASM at any time using Internet standards (currently POP3 or IMAP4).
The user can retrieve email from the PSM at any time using Internet standards (currently POP3 or IMAP4) user other software that can delete, further filter, or altogether discard the contents.
SUBSCRIBERs may interact with the UMM at any time.
Use of SMTP-standard email error response codes as a matter of rejecting user-specific spam

This is being used today, but only where a given email server is rejecting ALL email from a given NETWORK. This claim is against SPECIFIC email directed to a SUBSCRIBER that is identified to have originated from a A SPAMMER.

As a client-side software package on an Outlook 98 or greater client.

After installation, a folder labeled "PSM" will be created.
Users may interact with the a client-side installation of the UMM at any time.
ASM will be sent to the standard "inbox" folder and PSM will be sent to the "PSM" folder.
Other operations are similar to the server-side package or online service described above.

(k) Claim or claims.

Any software which analyzes the user's personal email usage patterns to create an ASL or equivalent and in-turn uses this ASL to make decisions on how to process incoming email.
Analysis of sent email and received to determine and refine the ASL.
Analysis and rejection of SPAM at the lowest (earliest) possible level in the mail transmission protocol such that SPAMMERS receive error messages indicating the user doesn't even exist.
SUBSCRIBER never even processes or downloads email.
Analysis of contact databases to determine and refine the ASL.
Analysis of email logs (both sent and received) to determine and refine the ASL.
Methods to only allow humans to access the WBM to send messages to the SUBSCRIBER.

Methods for 3rd party software to interface with SPAMKAPU to broaden the scope and functionality of determining if email is SPAM or not, for example:

Analysis against 3rd party databases such as the Better Business Bureau

Methods for 3rd party software to interface with SPAMKAPU to broaden the scope and functionality of the various types of actions that can be taken on SPAM.

Methods for 3rd party software to interface with SPAMKAPU to broaden the scope and functionality of analyzing power

(l) Abstract of the disclosure.

(m) Drawings (if any).

(n) Executed oath or declaration.

(o) Sequence listing (if any).

(p) Plant Color Coding Sheet (applicable in plant patent applications).

Other

dataflow of overall system

server-based architecture of system

client-based architecture of system

list of other ideas and uses of the system and variances to do the same thing (other than spamming)

references to other technology used

RFC 821

SMTP email

PERL

Sendmail

RealTime Blackhole List (www.mail-abuse.org)

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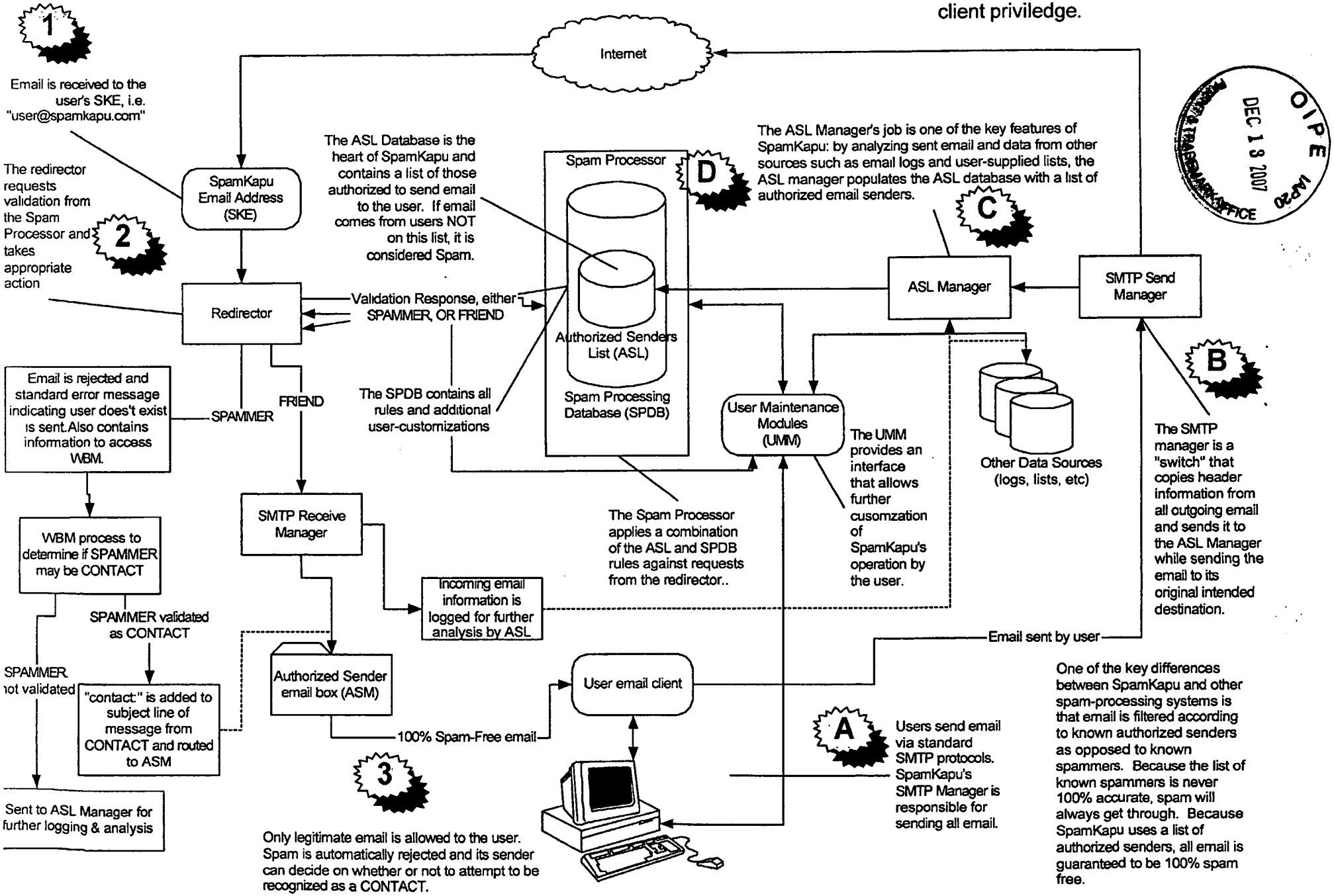
"SpamKapu" high-level operational diagram.



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"SpamKapu" Conceptual Organization

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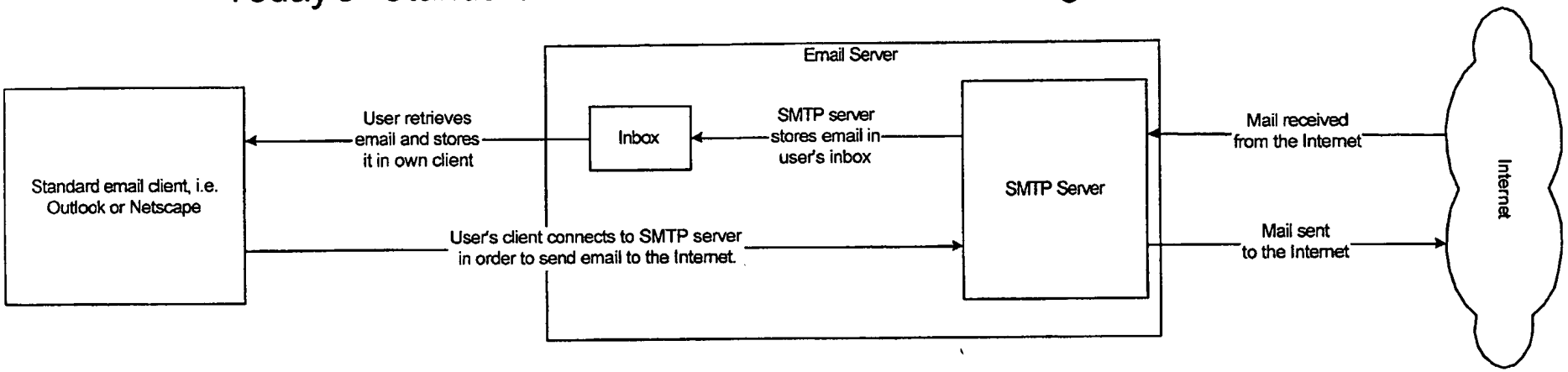
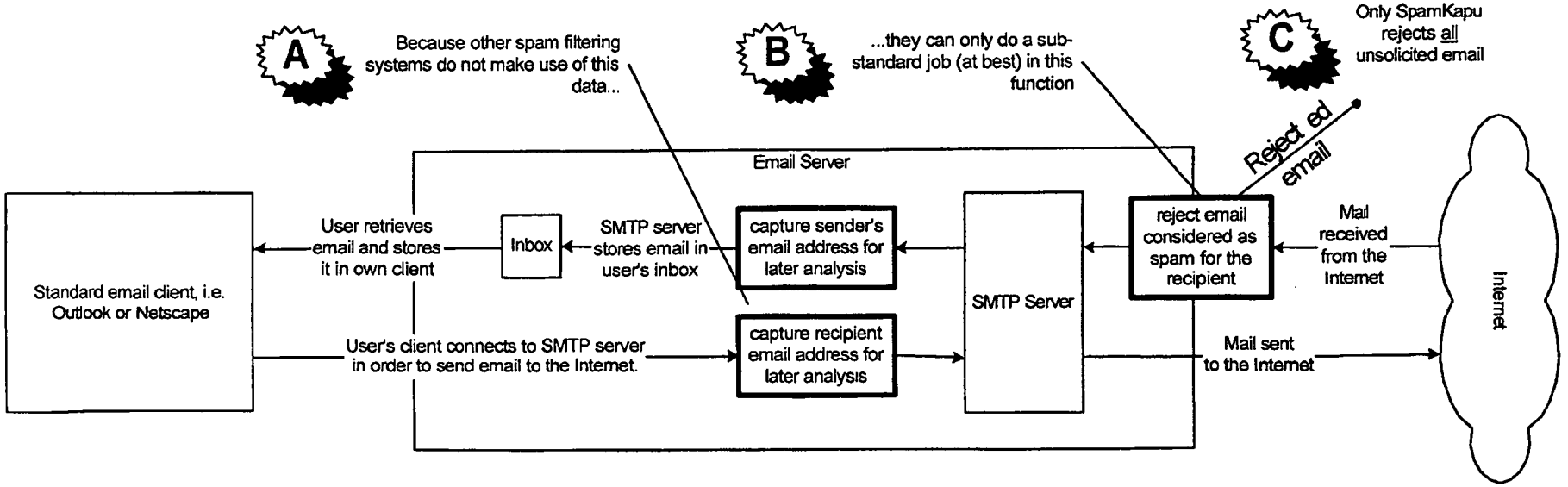
Today's "Standard" SMTP send/receive block diagram and data flow



Spamkapu additions to SMTP send/receive block diagram and data flow

Additions shown in **bold** blocks



"SpamKapu" detailed operation of SMTP Manager

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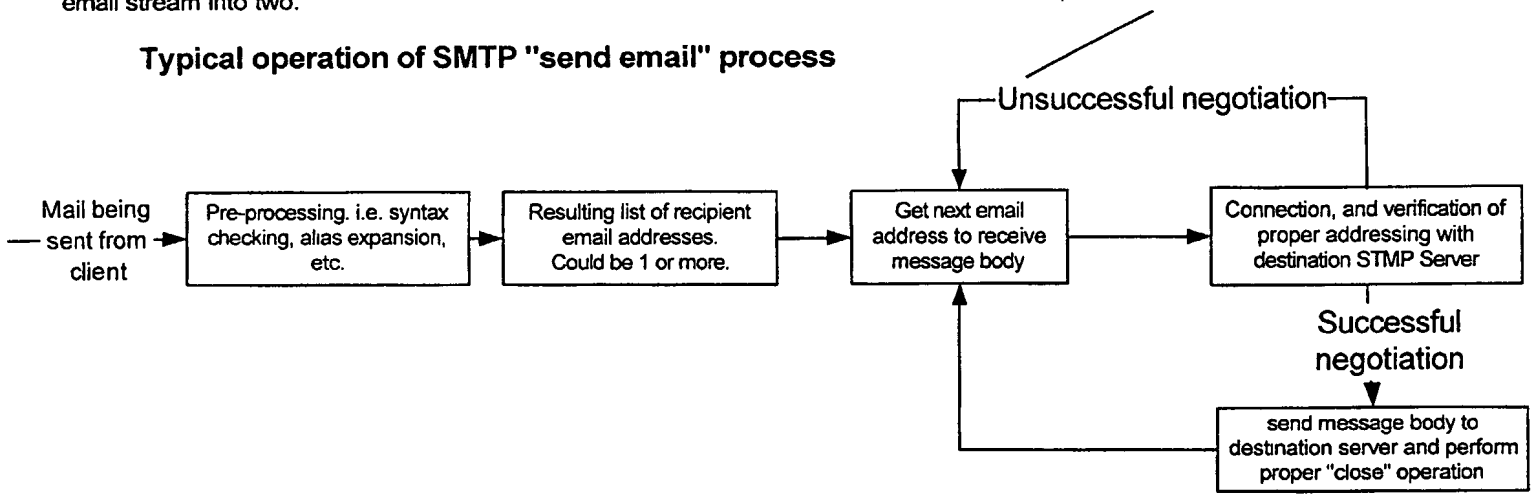
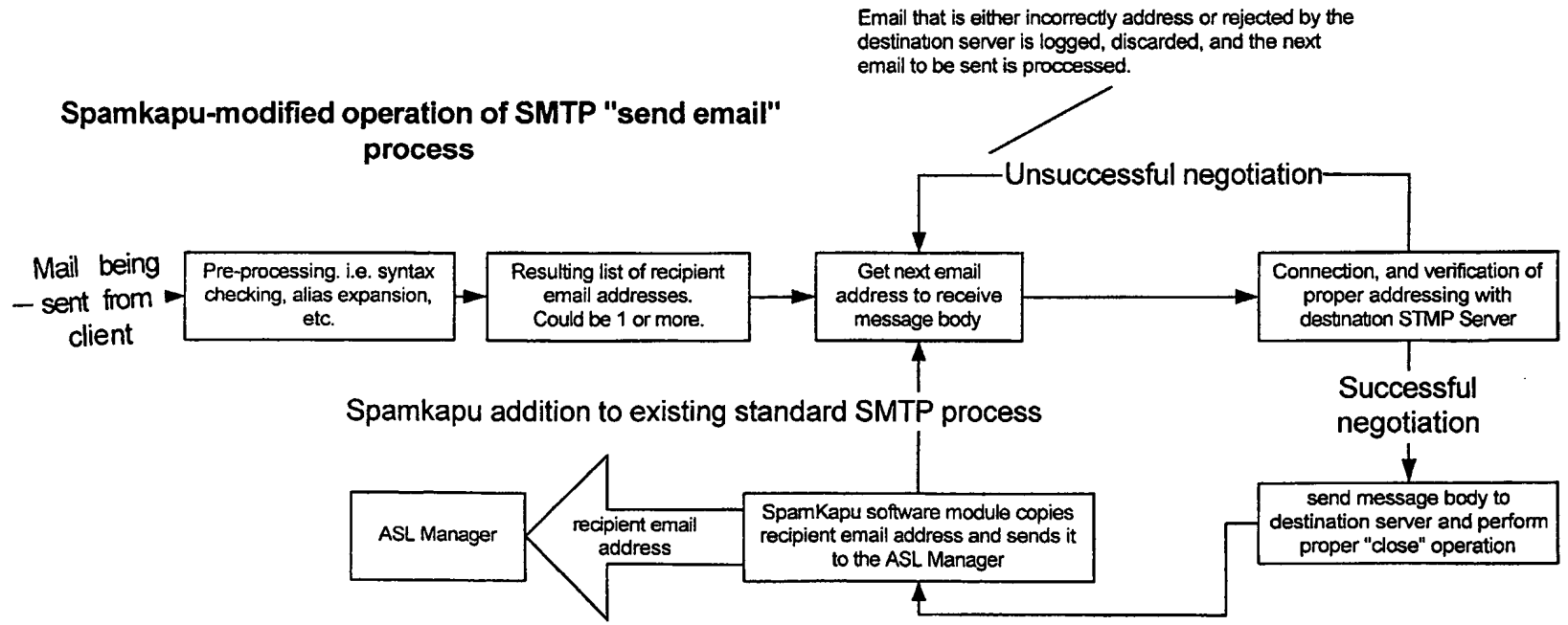
The STMP Manager's key role is to intercept outgoing email and copy recipient email addresses to the ASL manager. Think of the ASL Manager as a "email signal splitter" whose job is to split the email stream into two.

Typical operation of SMTP "send email" process



Spamkapu-modified operation of SMTP "send email" process



"SpamKapu" detailed operation of SMTP Receive Manager

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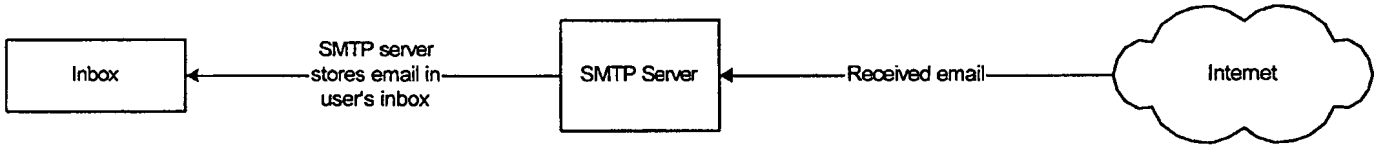
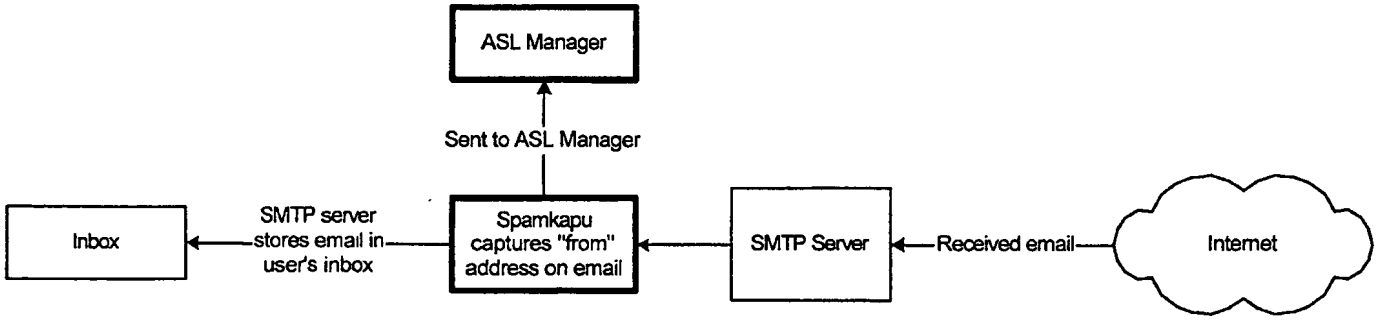
Today's "Standard" SMTP receive block diagram and data flow



Spamkapu additions to SMTP send/receive block diagram and data flow

Additions shown in **bold** blocks



"SpamKapu" detailed operation of SPAM PROCESSOR

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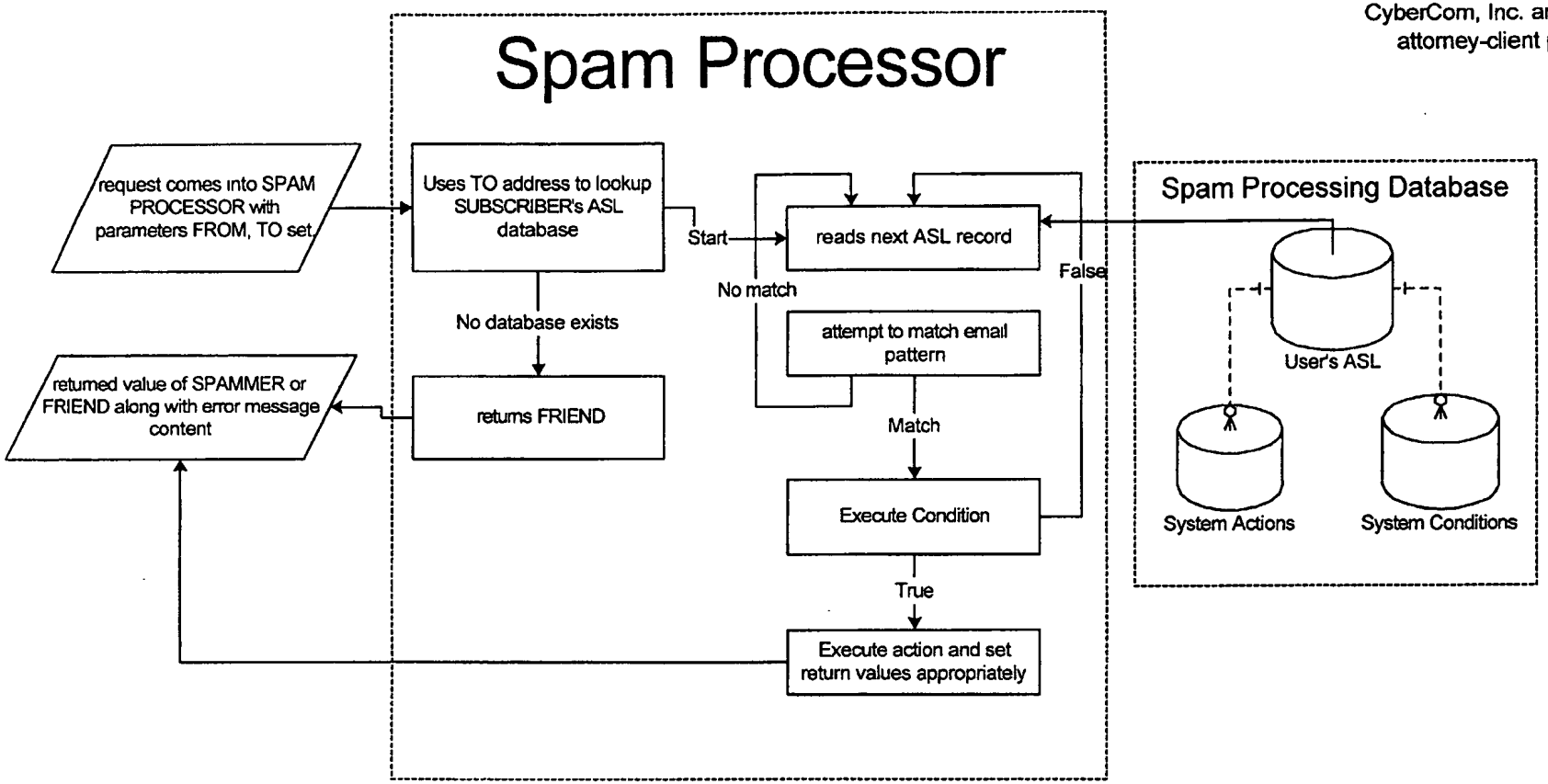

"SpamKapu" detailed operation of SPAM PROCESSOR DATABASE

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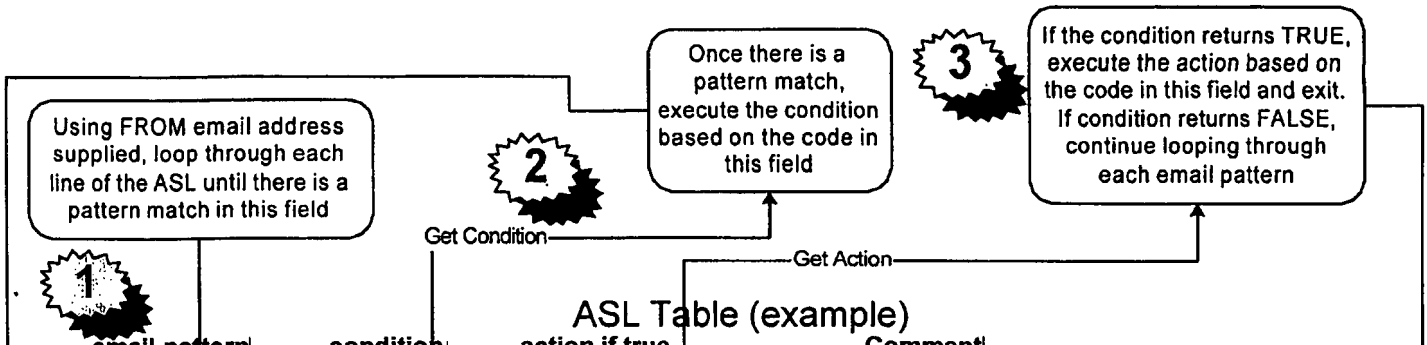

ASL Table (example)

email pattern	condition	action if true	Comment
mom@gte.net	always	friend	this is my mom so she's always a friend
sales@acme.com	activerange (2/5/2004, 6/5/2004)	friend	I'm working with this businessperson only from Feb 5 to June 5
john@home.com	before (12/1/2003)	friend	After 12/1/2003, I do not want messages from this address
*@aol.com	always	email (SPAMMER, "noaol.txt")	email we get from aol gets send back with an explanation
*	blackhole()	emailtrnother (SPAMMER, blacklist.txt, abuse@%domain% %SENDER%, admin@spamkapu.com)	run a 3rd party software, mark as a spammer, send a standard message to the system's administrator, and mark it as coming from spamkapu's administrator
*	activerange (3/14/*, 3/20/*)	friend	my birthday falls on 3/17, so from 3/14 to 3/20, I'll let anyone pass through to wish me a happy birthday.
*	always	errormsge(spammer, contact.txt, 550)	mark as spammer, send the "you might be a contact" message, return "No such user" error code

Execute

Execut

Condition Table (example)

condition	syntax	description	code
always	always	return true always	return(true)
activerange	activerange (low date, high date)	true if today is within a range	if today >= %1 and today <=%2 then return(true)
runcode	runcode(filename)	runs long and lengthy code program	exec(file.pl)
blackhole	blackhole()	3rd party software to check against a blackhole list	exec(blackhole.exe)
before	before(date)	true if today is less than date	if today <= %1 then return(true)

Action Table (example)

action id	syntax	description
email	email(ident, file)	return parm1 as identifier, get 2nd parameter as a filename, translate and email it.
errormsg	errormsge(ident, file, errorcode)	return parm1 as identifier, get 2nd parameter as a filename, translate and return it as the error code
external	exec(file)	execute 2nd parameter as an external 3rd party software package and return its result as the
emailrtn	emailtrnother (ident, filename, to, from)	return parm1 as identifier, get 2nd parameter as filename of message text, send it as an email to 4th parameter, and use 3rd parameter as FROM
friend	return(SPAMMER)	return value as FRIEND, no parms needed
spammer	return(SPAMMER)	return value as SPAMMER, no parms needed

"SpamKapu" detailed operation of ASL Manager

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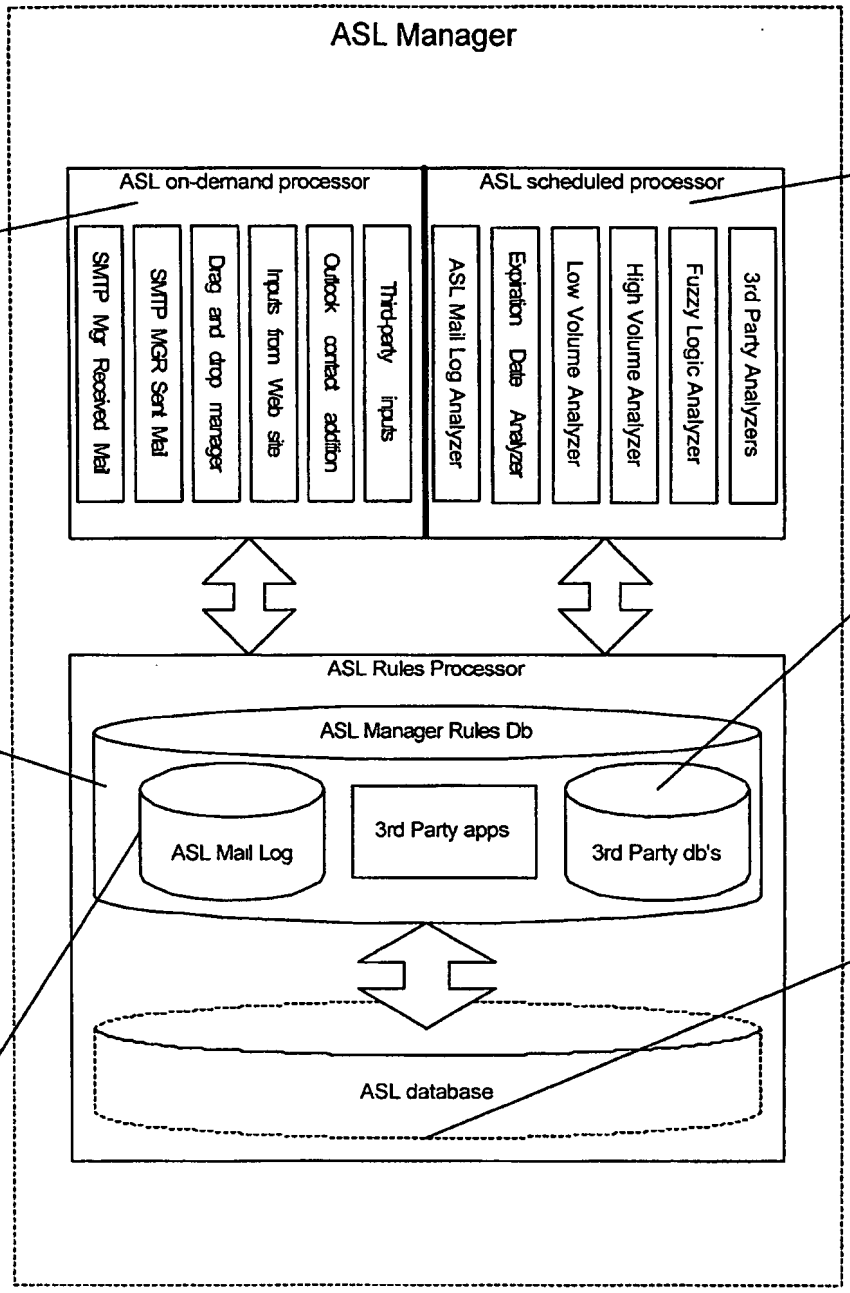


Content arrives into the ASL "live" from a variety of sources and easiliy incorporates 3rd party plugins.

The classic example is of course are email addresses being sent to and received from the SMTP Manager, however it doesn't have to stop there. There are a wide variety of other sources from which email addresses may be gleaned.

After content has arrived either on-demand or via scheduling, the rules processor determines how to add, update, or modify the ASL database

The ASL Mail log can be populated by any on-demand or scheduled process It contains a very rich history of the SUBSCRIBERS availble for analysis.

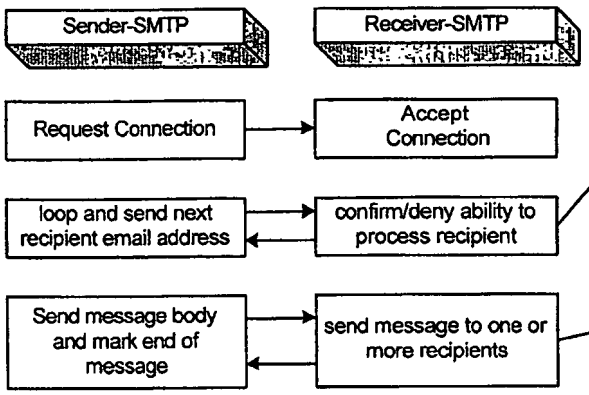
The ASL Manager also runs tasks on a scheduled basis for analysis and maintenance functions. This allows a very rich examination of the SUBSCRIBER's ASL database and mail log to continually refine the database accuracy and relevance.

The system's architecture allows for easy integration of 3rd party solutions so that SpamKapu can harness the collective power of the industry to continually extend and improve its feature set.

The ultimate resort of this architecture is to create a very richly detailed ASL database which goes beyond total elimination of spam by continually reflecting the current needs of the SUSSCRIBER dynamic use of email

"SpamKapu" detailed operation of REDIRECTOR

Typical operation of SMTP "send email" process



Typically, the standard confirmation performed is simply based on whether or not the user exists or whether or not the SMTP receiver has the authority to process email for this user. There very little to no other logic performed.

At this stage, users are going to get this email in their standard inbox.

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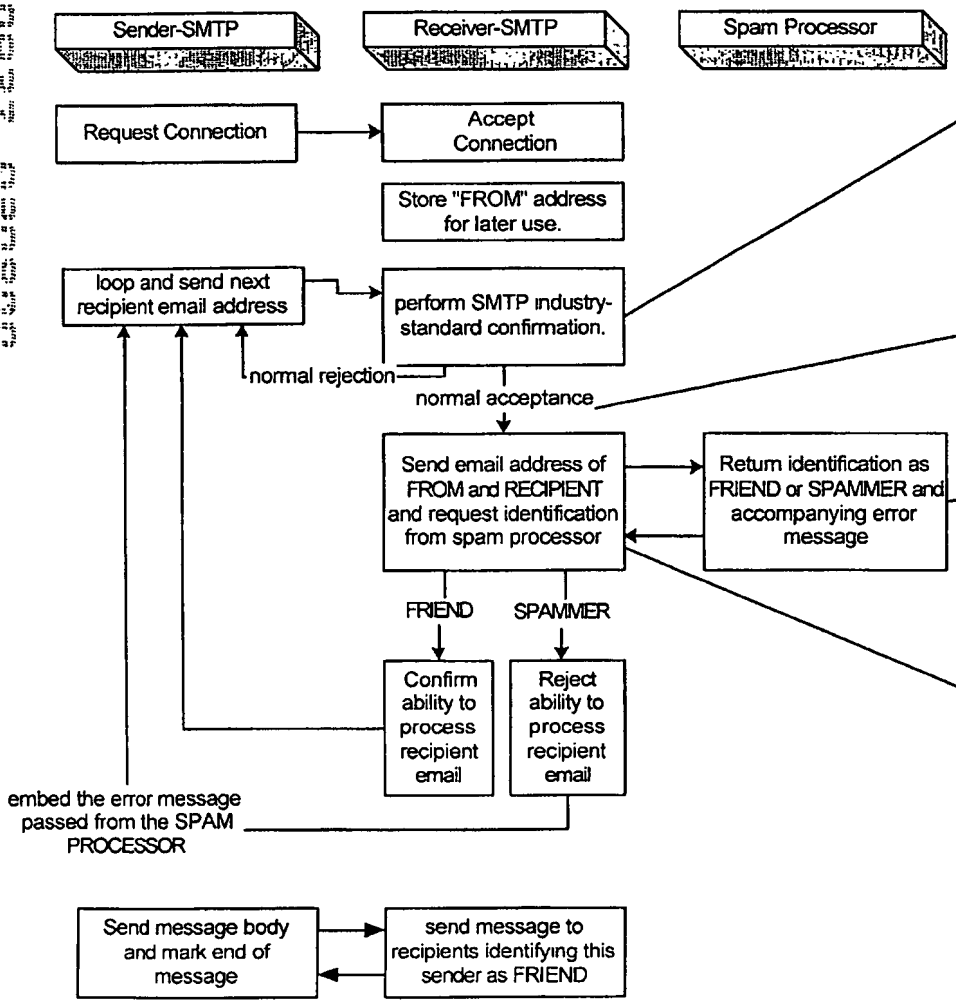
SpamKapu-modified operation of RECEIVER-SMTP process, known as the REDIRECTOR



At this level we are doing exactly what a standard SMTP receiver would do: either reject or accept a given recipient address.

If a recipient would have "normally" been accepted, the SpamKapu process then takes over

Explained in more detail elsewhere

At this level, SpamKapu has recognized the sender as either SPAMMER or FRIEND. If FRIEND, then recipient (SUBSCRIBER's) email address is confirmed as valid, otherwise, an error message is returned. The content of the error message provides instructions to the user on how to access the WBM and establish themselves as a FRIEND.